**Chapter 5 – Evolution of Biodiversity**

**I. Module 14 – The Biodiversity of Earth**

A. How we estimate the number of species living on earth.

1. Species –

2. # species scientists have identified \_\_\_\_\_\_\_\_

3. How many species may live on earth? \_\_\_\_\_\_\_\_\_\_\_

B. Measuring Biodiversity

1. Biodiversity –

2. Species richness –

3. Species evenness –

C. Evolutionary relationships

1. Phylogeny –

2. Phylogenies are based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

D. Do the Math p. 153 - Your Turn.

E. Answer review questions p. 153-154

1. 2. 3. 4.

**II. Module 15 – How Evolution Creates Biodiversity**

A. Processes that cause genetic diversity

1. Genetic diversity is created through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Evolution -

3. Microevolution –

4. Macroevolution –

5. Gene –

6. Genotype –

7. Phenotype –

8. Mutation –

9. Recombination –

B. Evolution can occur through artificial selection.

1. Artificial selection –

2. List two examples.

C. Evolution can occur through natural selection.

1. Natural selection –

2. List Darwin’s five key points of natural selection.

3. Fitness –

4. Adaptations –

D. Evolution can also occur through random processes.

1. Mutation –

2. Example

3. Gene flow –

4. Example

5. Genetic drift –

6. Example

7. Bottleneck Effect –

8. Example

9. Founder effect –

10. Example

E. Answer review questions p. 163.

1. 2. 3. 4. 5. 6. 7.

**III. Module 16 – Speciation and the Pace of Evolution**

A. Speciation can be allopatric or sympatric.

1. Allopatric speciation –

2. Geographic isolation –

3. Example

4. Sympatric speciation –

5. Reproductive isolation –

6. Example

B. The pace of evolution depends on several factors.

1. Rapid selection by natural selection –

2. Example

3. Very rapid evolution by artificial selection-

4. Example

5. Genetically modified organism (GMO) –

6. Example

C. Answer review questions on p. 168.

1. 2. 3. 4.

**IV. Module 17 – Evolution of Niches and Species Distributions.**

A. Every species has a niche.

1. Range of tolerance –

2. Fundamental niche –

3. Realized niche –

4. Distribution –

5. Niche generalists –

6. Example

7. Niche specialists –

8. Example

C. Environmental change can cause species extinctions.

1. Explain why.

2. What is the fossil record?

3. What is a global mass extinction? How many have occurred?

4. What is the sixth mass extinction?

D. Answer the review questions p. 173-174.

1. 2. 3. 4. 5.

**V. Working Toward Sustainability – Protecting the Oceans When They Cannot be Bought.**

A. Critical thinking questions p. 175.

1.

2.